

Recombinations in Western Australian Orchidaceae 1

In recent years many genera of Australian Orchidaceae have been revised (see eg. Clements and Jones 2002; Jones 2002; Jones *et al.* 2001, 2002; Jones & Clements 2002a, 2002b, 2003; Hopper and Brown 2000, 2004; Szlachetko 2001, 2003), resulting in substantial instability due to the splitting of well-established genera into a large number of smaller segregates. Among Western Australian genera, *Caladenia*, *Corybas*, *Dendrobium*, *Microtis*, *Prasophyllum* and *Pterostylis* have been revised and may be subject to further revision. Accepting all proposed nomenclatural changes would result in generic reassignments for 152 species, amounting to 39% of orchid species currently accepted in the Census of Western Australian Plants (Western Australian Herbarium 1998–), and the creation of 20 new genera.

The most problematic genera are *Caladenia* and *Pterostylis*, which have recently been segregated into seven and 16 genera respectively (Clements and Jones 2002; Jones 2002; Jones *et al.* 2001a, 2002; Jones and Clements 2002a, 2002b, 2003; Szlachetko 2001, 2003). Arguments for the segregation of these genera have been made in the above cited papers. Conversely, arguments for retention of the whole of *Pterostylis s. lat.* and the major portion of *Caladenia s. lat.* have been made by Hopper and Brown (2000, 2004) and Hopper (2004). Morphological and molecular analyses provide clear evidence that the traditional genera in these instances are monophyletic (after some minor reassignments in the case of *Caladenia*; see Hopper and Brown 2000, 2004; Jones and Clements 2002b; Kores *et al.* 1997, 2000, 2001), the segregate genera being well-supported clades within the monophyletic main groups.

In other cases, such as the separation of *Hydrorchis* from *Microtis s. lat.* by Jones *et al.* (2002), the decision to segregate appears to be based on relatively minor morphological differences with no supporting molecular data. Current information provides no reason to regard *Microtis s. lat.* as non-monophyletic.

The position accepted by the Australian Plant Census (APC) working groups and by the Council of Heads of Australasian Herbaria with respect to the rare and threatened orchid taxa covered so far for the APC (Australian Plant Census 2007; Entwisle and Weston 2005) is to retain the traditional genera and to recognise well-supported clades within them at infrageneric rank or as informal groupings. This position is provisionally adopted at PERTH, until compelling evidence for the need to segregate is presented.

Two new species from Western Australia were recently described under the segregate genera *Hydrorchis* (Jones and Brockman 2005) (= *Microtis*) and *Oligochaetochilus* (Jones 2004) (= *Pterostylis*). This paper provides the necessary recombinations of these new taxa into the genera accepted at PERTH, in order that they may be dealt with adequately in Western Australia. Future short communications in this series will deal with any further taxa so described, until a broadly accepted consensus is reached with respect to the boundaries of these genera.

New combinations

Microtis cupularis (D.L.Jones & G.Brockman) A.P. Br., *comb. nov.*

Hydrorchis cupularis D.L. Jones & G. Brockman, *The Orchadian* 14(11): 518–519, Fig. 1 (2005).
Type: Western Australia: Piney Lakes Nature Reserve, Murdoch Dr., Bullcreek, 32°02'58"S, 115°50'37"E, 13 Oct. 2000, G. Brockman 684 (*holo:* PERTH 06001114; *iso:* AD, BRI, CANB, MEL, NSW).

Pterostylis frenchii* (D.L. Jones) A.P. Br., *comb. nov.

Oligochaetochilus frenchii D.L. Jones, *The Orchadian* 14(10): 444–446 (2004). Type: Western Australia: Yalgorup National Park, 14 Nov. 1993, C. French (D.L. Jones 12623) (*holo*: CANB; *iso*: PERTH).

References

- Australian Plant Census (2007). IBIS database, Centre for Plant Biodiversity Research, Council of Heads of Australasian Herbaria, <http://www.chah.gov.au/apc/index.html> [accessed 17 March 2007].
- Clements, M. A. & Jones, D. L. (2002). Nomenclatural notes arising from studies in the Tribe Diurideae (Orchidaceae): additions and a correction. *The Orchadian* 13: 502–503.
- Entwistle, T. J. & Weston, P. H. (2005). Majority rules, when systematists disagree. *Australian Systematic Botany* 18: 1–6.
- Hopper, S. D. (2004). Robert Brown's *Caladenia* and *Pterostylis* revisited. *Orchadian* 14: 366–71.
- Hopper, S. D. & Brown, A. P. (2000). New genera, subgenera, combinations and species in the *Caladenia* alliance Orchidaceae: Diurideae. *Lindleyana* 15: 120–126.
- Hopper, S. D. & Brown, A. P. (2004). Robert Brown's *Caladenia* revisited, including a revision of its sister genera *Cyanicula*, *Ericksonella* and *Pheladenia* Caladeniinae: Orchidaceae. *Australian Systematic Botany* 17: 171–240.
- Jones, D. L. (2002). New combination. *The Orchadian* 14: 71.
- Jones, D. L. (2004). *Oligochaetochilus frenchii* (Orchidaceae), a rare new species from south-western Western Australia. *The Orchadian* 14: 444–446.
- Jones, D. L. & Brockman, G. (2005). *Hydrorchis cupularis* (Orchidaceae), a new species from Western Australia. *The Orchadian* 14: 518–19.
- Jones, D. L. & Clements, M. A. (2002a). Nomenclatural notes arising from studies in the Tribe Diurideae (Orchidaceae): *Calonemorchis*. *The Orchadian* 14: 33–42.
- Jones, D. L. & Clements, M. A. (2002b). A new classification of *Pterostylis* R.Br. (Orchidaceae). *Australian Orchid Research* 4: 64–124.
- Jones, D. L. & Clements, M. A. (2003). Nomenclatural notes arising from studies into the Tribe Diurideae (Orchidaceae): *Jonesiopsis*. *The Orchadian* 14: 179–83.
- Jones, D. L., Clements, M. A., Sharma, I. K. & Mackenzie, A. M. (2001). A new classification of *Caladenia* R.Br. (Orchidaceae). *The Orchadian* 13: 389–419.
- Jones, D. L., Clements, M. A., Sharma, I. K., Mackenzie, A. M. & Molloy, B. (2002). Nomenclatural notes arising from studies into the Tribe Diurideae (Orchidaceae). *The Orchadian* 13: 437–8.
- Kores, P. J., Cameron, K. M., Molvray, M. & Chase, M. W. (1997). The phylogenetic relationships of Orchidoideae and Spiranthoideae (Orchidaceae) as inferred from *rbcl* plastid sequences. *Lindleyana* 12: 1–11.
- Kores, P. J., Weston, P. H., Molvray, M. & Chase, M. W. (2000). Phylogenetic relationships within Diurideae: inferences from plastid *matK* DNA sequences. In: Wilson, K.L., Morrison, D.A. (eds) "Monocots: systematics and evolution", pp 449–456. (CSIRO Publishing: Collingwood, Vic.)
- Kores, P. J., Molvray, M., Weston, P. H., Hopper, S. D., Brown, A. P., Cameron, K. M. & Chase, M. W. (2001). A phylogenetic analysis of Diurideae (Orchidaceae) based on plastid DNA sequence data. *American Journal of Botany* 88: 1903–1914.
- Szlachetko, D. L. (2001). Genera et species Orchidaliium. 1. *Polish Botanical Journal* 46: 11–26.
- Szlachetko, D. L. (2003). Nomenclatural adjustments in Caladeniinae (Orchidaceae, Thelymitroideae). *Annales Botanici Fennici* 40: 243–245.
- Western Australian Herbarium (1998–). FloraBase – The Western Australian Flora. (Department of Environment and Conservation) <http://florabase.dec.wa.gov.au/> [accessed 17 March 2007].

K.R. Thiele¹ and A.P. Brown²

Department of Environment and Conservation,

¹Western Australian Herbarium, Locked Bag 104, Bentley Delivery Centre, Western Australia 6983

²Species & Communities Branch, PO Box 51, Wanneroo, Western Australia 6065